

CENTRAL REGION EMS AND TRAUMA PLAN 2004-2005

Submitted By:

**CENTRAL REGION
EMERGENCY MEDICAL SERVICES
AND
TRAUMA CARE COUNCIL**

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INTRODUCTION

SUMMARY OF PROPOSED CHANGES

The Central Region Emergency Medical Services and Trauma Care Council requests **no changes** to the following elements of the Regional Plan:

- Recommended number of Department-approved verified prehospital providers
- Recommended number, and level of Department-designated trauma services and rehabilitation services
- Patient Care Procedures
- Adopted Council standards

Agency Change

Evergreen Medic One Service is being divided between Shoreline Medic One and Redmond Fire Department. Shoreline is an approved ALS provider in this region. Redmond Fire Department (King County District 34) has submitted to DOH a Service/Vehicle Licensure Application to change their agency verification level from BLS to ALS. No additional ALS agency is being created in the Region and no changes will occur in paramedic service areas.

EXECUTIVE SUMMARY

The Central Region is home to an estimated 1.77 million residents, nearly one- third of the state's total population. Increasing population, changes in the health care sector, and growing demand for services continues to challenge EMS services in the Region. The FY 04/05 Central Region Biennial Plan reflects the outstanding efforts of the health care community to enhance trauma care in the Central Region and our desire to stay the course charted a decade ago.

Section III. Injury Prevention and Public Education

Falls are the leading cause of injury deaths among people 65 years and older. The Central Region EMS & Trauma Care Council, in partnership with King County Fire & Life Association, has been conducting home fall risk assessments and installing fall prevention devices in the homes of elderly persons for the past five years. Nearly 1000 homes have been assessed. The Central Region will continue to support the Fall Factors Program through 2005.

Observational data suggests that installation of fall prevention devices reduces the number of falls. In an effort to determine the effectiveness of installing fall prevention devices in the home, the EMS Division of Public Health Seattle & King County has gained Human Subjects permission to conduct a randomized fall prevention study.

In addition to the Council's IPPE programs, King County EMS Division of Public Health – Seattle & King County supports other injury prevention programs with Medic One levy funds and grant funds. Programs include teen driving, occupant protection, and skate park helmets. Local hospitals and other public and private organization are also involved in a number of injury prevention programs.

Section IV. Prehospital

Communication

The most common public access point to the emergency medical services in the Central Region is through the Enhanced 9-1-1 system. All 9-1-1 systems use advanced technology to identify the phone number and location of callers using wireline phones. The inability to locate the position of callers using wireless phone remains problematic. Other issues addressed include training, guideline reviews, and employee retention.

Prehospital EMS and Trauma Services

The EMS Division, as well as Seattle Fire Department, continue to develop innovative ways to make all training easily accessible to EMS personnel. Web-based CBT has now been developed for Seattle and King County EMTs.

Verified Aid and Ambulance Services

The Central Region EMS response areas are fire district based. Need and distribution are based mainly on call volumes and response times. The EMS Division is in the process of determining need and is beginning planning for the next six-year levy period (2008-2013).

Ninety-eight percent of EMS funding comes from a dedicated property tax levy. The total estimated revenues for 2002 were \$53,829. As a result, paid personnel staff most of the region's agencies. BLS funding for districts with large unincorporated areas is being revised to increase support for EMS agencies in those areas.

Patient Care Procedures

The Central Region Trauma Council will be reviewing the PCP's and making revisions to minor trauma patient transfers and MCI/Disaster response. Revisions should be completed in 2004.

Multi County or County/Inter-regional Prehospital Care

The Central Region is working with neighboring counties to promote usage of the Puget Sound Hospital Capacity Website Hospital as a means of alerting prehospital agencies of diversions. Prehospital agencies are developing a tri-county MCI plan and drill.

V. Designated Trauma Facilities

Central Region trauma center and rehabilitation facility staff have identified the following issues:

- Staff shortages
- "On-call" no shows and specialist availability
- Lack of after-hours primary and urgent care clinics
- Hospital and emergency department overcrowding
- Access to primary care and deferred treatment
- Inadequate public funding for healthcare
- Restrictions on services and equipment
- Barriers to data collection and analysis

VI. Data collection and Submission

Several prehospital agencies are collecting data electronically. MIRF narratives are not readily available in electronic form. Staff at EMS Division must request MIRF narratives from individual agencies for specific quality assurance programs.

VII. Quality Assurance Programs

The Central Region EMS & Trauma Care Council subcontracts with Harborview Injury Prevention and Research Center to collect, compile, and analyze trauma patient data for the region's quality assurance program. In fiscal year 2003, the Central Region Trauma Council budgeted \$126,509 for the region's trauma registry. Individual provider agencies, hospitals, and the EMS Division of Public Health also conduct quality assurance programs.

Section III

INJURY PREVENTION AND PUBLIC INFORMATION/EDUCATION

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INJURY PREVENTION AND PUBLIC INFORMATION/EDUCATION

Central Region EMS and Trauma Care Council IPPE Programs

The intent of the Central Region's IPPE program is to concentrate on one injury issue which is the leading cause of injury deaths among people 65 years and older. This population also is the fastest growing segment of the U.S. population. In the year 2030, 20% of this population will be in this age group¹.

Regional Issues:

From 1900 to 1994, the elderly population has increased 11 fold, compared with a 3-fold increase for people under 64 and in the last century, life expectancy has nearly doubled. In King County, there are approximately 171,167 people 65 years and older (male -72,678, female-98,489), which represents 10% of the total population. The overall mean income of people 65 and older is \$15,329, approximately 9% are below poverty level and 42% of those 65 and older have a disability². In addition, 42.8% of all ALS responses were to people 65 and older and another 33.4% were BLS responses. Falls represent a large percentage of non-fatal injury hospitalizations in King County, the rates are as follows:

Falls (rate per 100,000)³

Age 65-74	688
Age 75-84	2,141
Age 85+	5,422

This older population presents a unique challenge and an opportunity for the Central Region EMS and Trauma Care Council. The opportunity is to focus on one major injury issue – fall prevention for the older adult.

Regional Strengths:

The two major strengths of the Central Region are:

- 1) Data collection and analysis
- 2) Collaboration with the fire departments

Since King County EMS has a centralized data collection program, we are able to analyze ALS and BLS responses by mechanism of injuries, patient age, fire department service area, etc. this data centralization is conducive to justify program need and location.

King County houses one the largest and active non-profit fire service organizations called the King County Fire & Life Safety Association, a non-profit organization that is comprised of fire and life safety educators that are dedicated to educate the public on fire and life safety issues. Listed below are the collaborators:

American Red Cross	Auburn Fire Department	Bellevue Fire Department
Boeing Fire Department	Bothell Fire & EMS	Burien Fire Department
C.P.S.C.	Camano Is. Fire & Rescue	Central Kitsap Fire
Des Moines PD	Eastside Fire & Rescue	Enumclaw Fire Department
Federal Way Fire	Graham Fire & Rescue	Highline Hospital
Kent Fire	Kent PD	King County EMS
King County Fire Dist. #11	King County Fire Dist. #13	King County Fire Dist. #17
King County Fire Dist. #20	King County Fire Dist. #25	King County Fire Dist. #26
King County Fire Dist. #27	King County Fire Dist. #40	King County Fire Dist. #44
King County Fire Dist. #45	King County Fire Dist. #46	King County Fire Dist #51
King County FMO	King County Medic One	Kirkland Fire Department
Kitsap Fire District #7	Maple Valley Fire Department	Medic One Foundation
Mercer Island Fire Dept	Northshore Fire Department	NW Burn Foundation
Pacific Fire Department	Port of Seattle	Portland Fire Bureau
Redmond Fire Dept	Renton Fire Department	Rural Metro
SAFECO	Safety Restraint Coalition	SeaTac City Fire Dept
Seattle Fire Department	Shoreline Fire Department	South County Child Passenger Safety Team
South Puget Regional Handcrew	Spokane Fire Department	State Farm Insurance
Surrey Fire Department	Tacoma Fire Department	Tukwila Fire Department
WA State Patrol	WA State DNR	Woodinville Fire & Life Safety

Regional Weaknesses:

With the shrinking IPPE direct program funds (\$10,000 per year), it is extremely difficult to maintain a viable fall prevention program in this region. Considering that nearly 1/3 of people 65 and older fall each year, which translates to 56,485 people falling each year, of those, there are 5,083 people below the poverty level. With current funding levels, the fall program can only reach approximately 100-130 low-income older adults each year. To date we have accomplished 932 assessments in a 4-1/2 year period. It would take about \$508,300 to meet the demands of older adults that fall.

Fall Factors Prevention

The intent of the Central Region's IPPE program is to concentrate in one injury issue which is the leading cause of injury deaths among people 65 years and older.. The Falls Factor Program aims to prevent falls among older persons at elevated risk of falls by providing home safety inspection and risk reduction device installation as well as education regarding methods to reduce falls.

Objective: Continue the program in King County by assessing 100 homes per year

Strategy: Collaborate with fire departments, local hospitals, senior services, and other older adult related agencies to continue the program in King County.

Currently the Fall Factors program found a fall risk of 21% overall and 24% among those who reported a fall in the 12 months prior to enrollment. Other studies in similar populations (older persons with prior falls) with comparable follow-up that have investigated the natural history of falls have reported a 50-67% risk of falls (Tinetti et al, Hornbrook et al). If we contrast to the reported natural history, the Falls Factor experience appears to have reduced the relative risk of falls by approximately 50%. Such a reduction would have meaningful personal and public health benefits for the community.

Fall Factors Prevention Costs: \$10,000 (from Dept of Health, EMS)

Barriers: None expected

Activity Measurement

Current fall database will catalog participant age, sex, address, fall history, location of previous fall, type of injury, and called 911? and transported to hospital/ER/PCP/no treatment. After the assessment, a quarterly survey is mailed to the participants requesting further fall information – any falls after the assessment, if so type of injury, location, called 911, transported to hospital/ER/PCP. KC EMS's Epidemiologist Dr. Tom Rea routinely analyzes this data.

KC EMS INJURY PREVENTION PROGRAMS

In addition to the Council's IPPE programs, King County EMS continues to support other injury prevention programs with Medic One levy funds and grant funds to address: Teen Driving, Occupant Protection, Skate Park Helmet Safety, and a Randomized Pilot Fall Prevention.

Teen Driving

Teen Driving Program Issues:

Traffic collisions are the leading cause of unintentional death in Washington State. From 1993 through 2000 the 15-20 year old age group accounted for 71% of all deaths in crashes involving underage drinking drivers in Washington. County roads have the highest percentage of drinking driver involved deaths at 38.6% and State or US highways have the second highest percentage of drinking driver involved death rate at 34.1%.⁴ In King County, the MVT occupant rate per 100,000 for age 15-17 = 75.2 and age 18 –19 = 96.9 for 1996-2000 ³

Teen Driving Program Strengths:

Same as regional strengths.

Teen Driving Program Weaknesses:

Lack of funds and resources limit the growth of the program to schools that do not have a fire department that is actively presenting the program in their community.

Goal: Educate teenagers on the consequences of drinking and driving and not using their seat belts.

Objective: Reach 5,430 high school students with the Think Again program.

Strategy: Six Fire Departments are actively presenting the Think Again– King County Fire #40, Bothell FD, Shoreline FD, Kirkland FD, Kent FD, Eastside Fire.

Barrier: The program is available to all high schools in the county, however schools can only participate by acquiring matching funds to help defray the costs of the instructors.

KC EMS supports the Think Again program through a grant to the King County Fire & Life Safety Association. Launched in 1998, the Think Again program of the King County Fire & Life Safety Association (KCFLSA) has become an unqualified success. During the 2001/2002 school year, 13 King County Fire Departments participated in the program. Over 30,000 high school students have been reached with this program. Washington Traffic Safety Commission and KC EMS have funded this program for the past 4 years and have once again funded the program for 2003

Teen Driving Program Costs: \$12,750 (WTSC - \$7,500; EMS- \$5,000)

Teen Driving Program Barriers: Limited funds to accomplish another seat belt observation survey

Teen Driving Activity Measurement

Measurement of the program will be the success of individual fire departments to reach their student goals that have been previously established. Documentation of actual student scenarios of seat belt use and MVA's.

In order to help assess the potential effectiveness of the Think Again program with regards to seatbelt use, the EMS Division of Public Health conducted two distinct evaluations of the 2001-2002 program. The first portion sought to determine whether the program may have affected students' attitudes regarding seatbelt use. After participating in the program, students were asked to complete a short survey that asked how frequently they wore a seatbelt before the program and how frequently they would wear a seatbelt now that they had participated in the program. The second portion sought to evaluate whether the program affected actual behavior. The frequency of seatbelt use among students was recorded by trained assessors both before and after the Think Again program.

Assessors were stationed at the parking entry during the morning hours prior to the start of school and recorded whether each student (driver or passenger) was wearing a seatbelt. The before-and-after assessment was done on the same day of the week, approximately one week before the program and again one week after the program. Standard statistical methods (Chi-square and students t-test) were used to compare students' attitudes and actual behaviors before and after the Think Again program.

Results: On average, students reported that they would be more likely to wear seatbelts following participation in the Think Again program (Table 1). The average "score" (lower score indicates a greater frequency of seatbelt usage) for seatbelt use was 1.59 for the pre-education period and 1.22 for the post-education period (p value $< .001$)

Table 1. Self-reported frequency of wearing a seatbelt according to pre- and post-education status

Frequency of wearing seatbelt	Pre-education (n=3856)	Post-education (n=3866)
Always (1)	55.0 (2119)	82.5 (3191)
Most of the time (2)	31.9 (1230)	14.2 (548)
Some of the time (3)	11.8 (456)	2.5 (95)
Never (4)	1.3 (51)	0.6 (22)

The proportion of students actually wearing seatbelts upon arrival at school was greater following the program compared the proportion of students before the program (Table 2). Similar patterns were observed for each of the schools included in the seatbelt assessment.

Table 2. Frequency of seatbelt use among drivers and passengers arriving at high school according to pre- and post-education status

Seatbelt Status% (n)	Pre education (n = 2707)	Post-education (n = 2566)	Odds ratio	95% CI
Yes	67.4 (1825)	73.7 (1890)	1.35	1.20, 1.52
No	32.6 (882)	26.3 (676)	--	--

Over the past 4 years, approximately 30,000 high school students have participated in the program. Emergency medical technicians and paramedics value and enjoy providing what they feel is a worthwhile community service. Based on the reports of the providers, students appear to enthusiastically participate.

The results of the analysis supports that the Think Again program positively influences both attitudes and behaviors regarding seatbelt use. The assessment does have limitations because the assessors often were aware of whether a given assessment was before or after the program (assessors were not “blinded”) and the evaluation did not assess the potential long-term effectiveness of the program. Despite these limitations, the results from this assessment suggest that the Think Again program can make an important difference in improving driving safety among one of the most at-risk groups.

Occupant Protection Issues

Motor vehicle crashes account for nearly 42% of all unintentional childhood injury related deaths for 0-14 years old ⁵. Over half of motor vehicle occupants under 15 years old involved in fatal crashes were unrestrained and there is a 51% non use of unrestrained 0-5 year olds accordingly to FARS 1998. National studies reflect an approximately 80% incorrect child restraint system use rate. In King County, the 1996-2000 non fatal injury hospitalizations rate per 100,000 for MVA’s occupant were: under 1 years old - 4.5; 1-4 years old – 6.9; 5-9 years old – 9.0 ³

Occupant Protection Program Strengths

KC EMS financially supports Child Passenger Safety events and currently has a NHTSA Certified Child Passenger Technician that collaborates closely with the South County Passenger Safety Team and is also a Board Director with the Washington State Safety Restraint Coalition. Additional strengths are noted in the Regional Strengths.

Occupant Protection Program Weaknesses

King County prosecutors have in the past denied employee participation in any child passenger safety programs. However, agencies can still support child passenger safety programs by sponsoring events, at last there hasn’t been a ruling on this yet! Public Health is willing to take a second look at this issue and make a determination within the coming year.

Occupant Protection Program

In conjunction with a broad educational effort, the EMS Division would support child car seat inspections throughout King County in conjunction with local Fire Department personnel and National Highway Transportation Safety Administration (NHTSA) certified child car seat technicians.

Goal: To increase public knowledge and awareness of child passenger safety.

Objective: Support five educational/check-up events held throughout King County

Strategies: Collaborate with Shoreline FD, Eastside FD, South County Passenger Safety Team, Kent PD, and the Boeing Flight Museum to implement a once-a-month event starting in May through Sept. 2003.

Occupant Protection Program Costs \$5,000 (KC EMS)

Occupant Protection Program Barriers

Due to the tunnel vision of King County government, limited staff resources is allowed to provide “hands-on” car seat inspections. However, in January 2003 senior management is addressing that issue since Public Health Nurses and WIC personnel are advocating a change in managements thinking processes.

Occupant Protection Activity Measurement

Monitor the number of checked child car seats that had been properly installed/incorrectly installed; types of installation errors, etc.

Skate Park Helmet Program Issues

There has been an increase of skateboarding and in-line skating injuries with the rise in popularity of the sport. Increasing injury rates are occurring in adolescents and young adults, while the most common type of injuries are musculoskeletal- mainly ankle strain/sprain, and wrist fractures ⁷. A study in Atlanta, GA suggests that most children injured were skateboarding on ramps and arenas, 37% of the injuries occurred because of a loss of balance and 26% because of a failed trick attempt ⁸

Another study in Victoria observed that younger skaters are less likely to wear personal protective equipment (PPE). Only 2.2% wore all four pieces PPE (wrist guards, elbow pads, knee pads, and helmets), 25.9% of skaters wore wrist guards, 23.5% wore knee pads, 6.9% wore elbow pads and 5.5% wore helmets ⁹. Although head injuries account for approximately 3.5 – 9% of all skateboarding injuries, fractures of both upper and lower extremities account for 50% of all musculoskeletal traumas. 33% of those injured on skateboards are injured within the first week of skateboarding ¹⁰

Skate Park Helmet Program Strengths

The current partnership with the King County Fire & Life Safety Association provides a unique opportunity to implement a skate park helmet program in selected areas of the county. Fire departments are willing to assist in numerous helmet safety programs in their area and have done repeatedly over the years.

Skate Park Helmet Program Weaknesses

Bicycle helmets are proven to save lives and reduce injuries, but there hasn't been an effective program to increase use of skateboard helmets by the adolescent population. Previous studies have shown that upper and lower extremities have higher rates of trauma then head injuries. This evidence may make it difficult to persuade the adolescent population to wear helmets.

Skate Park Helmet Program

Provide low cost multi-use helmets to users of skate parks in various locations throughout King County.

Goal: To increase public knowledge and awareness of multi-use helmet safety.

Objective: Distribute and properly fit multi-use helmets to users of skate parks in collaboration with fire departments and community partners.

Strategies: Collaborate with fire departments to assist in distribution and fitting of multi-use helmets at their local skate parks.

Develop a perpetual multi –use helmet fund in conjunction with the King County Fire & Life Safety Association.

Ask for \$10 donations for the multi-use helmets by the end-users

Skate Park Helmet Program Costs \$2,000 (KC EMS)

Skate Park Helmet Barriers None anticipated at this time

Skate Park Helmet Activity Measurement

Count of helmets distributed/fitted and the collaboration of other funders and partners for this program

Randomized Pilot Fall Prevention Issues

Falls among seniors are a priority concern because they are relatively common, produce considerable morbidity and mortality, have a high cost to society, and are potentially preventable. Because the cause of falls in the elderly is often multi-factorial, strategies that successfully reduce falls generally require identifying an appropriate at-risk group and intervening with a multidimensional approach that correctly addresses the pertinent individual risks. Some evidence suggests that seniors at greater risk benefit the most from interventions designed to reduce falls. Elderly persons who have previously fallen have an increased risk of recurrent falls, fracture, nursing home placement, and death. In addition, fear of falling results in functional limitation that adversely affects quality of life. Despite this knowledge, falls among elderly persons remain a considerable and increasing public health problem in need of effective, viable, and accessible interventions. As a result, design and implementation of programs to reduce falls in the elderly is supported by the Healthy People 2010 National Health Promotion and Disease Prevention Objectives which endeavor to reduce fractures and other injuries among the elderly and the National Institute of Aging Geriatrics Program which has directed special attention to issues of physical frailty and the development and testing of new interventions in controlled clinical trials.

In King County, fall-related events comprised 17% of EMS responses among persons 65 years and older, and the risk of a recurrent fall in the next year in this group approached 50%. Thus, a community-based program implemented through the emergency medical services system (EMS) may offer a unique and generalizable opportunity to identify high-risk older adults and intervene upon those at greatest risk of falling.

Randomized Pilot Fall Prevention Strengths

The strength of this program lies in the partnership that has been developed with the Bellevue Fire Department to assist in implementing the program. The past history of the Fall Factors prevention program will also assist us in achieving our goals.

Randomized Pilot Fall Prevention Weaknesses

The willingness of fall patients to be a participant of this study may delay the outcome of the project.

Randomized Pilot Fall Prevention Program

Insights gained from this pilot experience will undoubtedly help us fine tune the fall prevention intervention as well as improve our ability to enlist outside support for a larger study.

Goal: The purpose of this "pilot" project is to test the feasibility of interventions designed to reduce falls among seniors who require 911 for a fall-related event.

Objective: Reach 40 participants – 20 controls and 20 interventions

Strategies: Educate Bellevue Firefighters on the program
Follow pre-established randomized pilot fall program protocols

Randomized Pilot Fall Prevention Costs \$34,000 (KC EMS)

Randomized Pilot Fall Prevention Barriers None at this time

Randomized Pilot Fall Prevention Activity Measurement

Assessment of the "methods" used to: attain participants, referral to their PCP, various physiological and psychological tests, follow-up surveys, installation of safety devices and education.

References:

1. CDC fact Book 2000/2001
2. 2001 Supplementary Survey Profile US Census Bureau
3. 1996-2000 Washington State Department of Health, office of Hospital and Patient Data (CHARS)
4. Washington Traffic Safety Commission Report on Fatal Traffic Crashes in Washington State 1993-2000
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Section IV
PREHOSPITAL

Section IV

PRE-HOSPITAL

A. Communication

1a. Public Access

The most common public access point to the emergency medical system in the Central Region is through the Enhanced 9-1-1 system. The Region has a well-developed E-9-1-1 system that provides highly responsive police, fire, and EMS call receiving and dispatching services for the 39 cities and unincorporated areas in the Region. Calls to 9-1-1 are routed to primary Public Safety Answering Points (PSAPs) based on the police jurisdiction where the caller is located. If the PSAP also dispatches fire and EMS agencies for the jurisdiction, the call is handled at that site. When this is not the case, the call is immediately transferred to a secondary PSAP for fire or EMS call screening and dispatching service. All 9-1-1 systems use advanced technology to identify the phone number and location of a caller using a wireline phone.

Each private ambulance service operates a separate dispatch center. Dispatchers receive calls and send units based on the company's protocols and resource management plan. Emergency calls requiring EMS system response are referred to the appropriate PSAP.

Issues Identified

The use of wireless phones (cellular, PCS, etc.) is a growing concern in the Region. Presently one in four calls to PSAPs are from wireless phones. The number of calls from wireless phones is expected to double in the next five years.

- Calls from cellular phones do not provide the same level of information to the PSAPs that calls from wired phones provide. The caller's phone number and location are not available to the call receiver. If the caller is not familiar with the area they are calling from, they cannot provide an accurate address. As a result, response times to callers using wireless phones can be longer than to callers from wired phones. The FCC has directed cellular providers to develop GPS technology that will provide wireless callers with the same level of E-911 service as landline callers.

Development of GPS technology for cell phone users has been slower than expected. Currently there is debate regarding the accuracy of locating the caller - how close is close enough? How close is dependant upon where the caller is located. In a densely populated area, such as a crowded city, or in rough forest terrain, 100 yards would not be accurate enough to find the caller. In these instances, the caller would not be easily sighted. The GPS coordinates would need to be much more accurate.

- It is estimated that between 25% - 50% of wireless 9-1-1 calls are unintentional. Intentional 9-1-1 calls for non-emergencies and pranks also contribute to the problem of misuse of the 9-1-1 system. As the number of wireless phones continues to grow, misuse of 9-1-1 could have serious consequences for police, emergency services, and legitimate 9-1-1 callers.¹ Dispatch centers and the King County EMS Division are reluctant to address public education about the proper use and misuse of 9-1-1 for fear that some people might think they are not supposed to call 9-1-1. No goals have been established for this section.

1b. Dispatch

1) Dispatch Training

King County EMS and Seattle Fire Department provide training programs for call receiver and dispatch personnel in the region. Training provided by King County EMS includes basic and continuing CBD education and CBD instructor development. In addition to the training provided by King County and Seattle Fire Department, many PSAPs provide specialized training for their personnel.

Issues Identified

- Expense and difficulty in covering a call takers position while they are in training
- Training that is lecture based rather than interactive training.
- Frequent changes in guidelines, such as the AHA guidelines, that require more additional training

Goal: Enhance CBD Basic and Continuing Education - timeline fall 2003

Objective: Develop Basic and CE training that is more student involved, **Cost:** included in King County EMS CBD budget

Strategy: Develop interactive training tool that includes student demonstrations of applied learning in classroom

Objective: Make training more accessible. **Cost:** approximately \$100,000.00

Strategy: Develop distance-learning alternative - timeline late 2004, early 2005

Objective: Improve basic human physiology knowledge of entry-level call takers

Cost: included in King County EMS CBD budget

Strategy:

1. Develop 8-hour pre-basic CBD course on anatomy and physiology.
2. Follow-up pre-basic anatomy and physiology training during basic and CE classes to enhance knowledge.

¹ Lori Buck, "Misuse and Abuse of 9-1-1", Public Safety Communications, January 2003, 18.

2)i. Dispatch prioritizing

Dispatchers in the Central Region use King County Criteria Based Dispatch (CBD) guidelines to determine the appropriate level of emergency response. Seattle dispatchers use Seattle Fire Department Dispatch Guidelines. Following a brief interrogation, the dispatch center sends a BLS unit to the scene. If a patient's symptoms meet specific criteria, the nearest paramedic unit is also dispatched. Review of dispatch tapes and patient outcomes indicate that appropriate levels of care are being dispatched in a high percentage of cases.

Issues identified

Dispatchers and call takers interpret protocols and guidelines differently.

- Caller's description of symptoms might be difficult to interpret.
- Callers, especially older adults, do not want to bother people with their problems and might underplay the symptoms.
- Language differences may be a barrier to providing proper instructions and appropriate level of EMS response.

All issues identified are training related and are addressed in the Dispatch Training subsection.

2)ii. Combined Dispatch Centers

Some PSAPS dispatch police, fire, and EMS agencies for the jurisdiction. In these PSAPS, police may be given priority over EMS calls.

Issues identified

In centers that combine police, fire and EMS and the call is for police only, EMS calls may need to wait until the police call has been completed. In cases where both police and EMS are needed to respond, priority to police can lead to delay in pre-arrival instructions to E9-1-1 callers.

No goals were established for combined PSAPs and police vs. EMS priority.

3) Dispatch Assisted Bystander Care

Dispatchers remain on line to assist the caller with first aid and or CPR instructions until the aid unit arrives at the scene.

Issues identified

Recent review of 408 dispatch assisted CPR tapes has shown a number of reasons why CPR is not given. In 26% of the cases, CPR instructions were not offered to the caller. In 23% of the cases, the bystander declined to perform CPR. In 19% of the cases, the bystander accepted the instructions, but could not perform CPR.

In cases where CPR instructions were not offered by the call taker, the patient was reported to be conscious and/or breathing. The most common reason callers refused to provide CPR to a patient was due to their own physical limitations or the patient's position. Rarely did callers decline to provide CPR because of emotional distress or fear of communicable disease.²

It may be possible that through improved citizen CPR training with attention paid to normal vs. agonal breathing would be of some help in assisting the dispatcher to determine when CPR is needed. It is also possible that development of dispatch assisted CPR instructions involving chest compression with no ventilations would be less confusing and easier for callers to follow than the standard ventilation with chest compression instructions.

Goal: Improve usage of dispatch CPR when offered.

Objective: Study effectiveness of chest compression only vs. breaths + chest compressions – timeline unknown. **Cost:** unknown (feasibility of this study is being considered)

Strategy:

1. Design Study – assign chest compressions only to one dispatch agency, assign compressions + breaths to other dispatch agency
2. Obtain human subjects review
3. Submit Grant
4. Conduct study
5. Analyze results
6. Publish results of study

b4) Patient Care Procedures

King County dispatch centers use King County Criteria Based Dispatch (CBD) guidelines. Seattle dispatchers use Seattle Fire Department Dispatch Guidelines. Central Region Patient Care Procedures defer to guidelines developed by King County EMS and Seattle Fire for patient care.

Patient outcomes are subject of several quality assurance activities, both by individual dispatch agencies and the EMS Division. Recordings of E 9-1-1 calls are reviewed to determine if new training and guidelines would be helpful in improving dispatch communications, patient outcomes, and dispatch of appropriate level of care.

Goal: Ensure dispatch communications provides a high level of patient care while considering appropriate level of care

Objective: Determine if change is needed. **Cost:** included in EMS Division budget

Strategy:

1. Study data from first review
2. Make necessary changes
3. Print and redistribute guidelines

² Samantha R Hauff, BA and others, "Why does Dispatcher-assisted Bystander CPR Not Occur?", EMS Division of Public Health Seattle & King County 2002

b5) Dispatch Personnel

It can take over one year of training and experience to make a qualified call taker. It can take over three years of training and experience before a call taker is qualified to become a radio dispatcher. This represents a considerable investment in time and money on the part of the dispatch agency as well as time on the part of the employee.

Issue identified

Dispatch centers have difficulty hiring and retaining employees. Low pay, long hours, weekends, night shifts, and mandatory overtime are responsible for employee burnout and large turnover within dispatch centers. Part-time shifts, shift trading, higher pay, and better benefits could attract more trainees and help to keep experienced call takers and dispatchers from resigning. APCO (Association of Public-Safety Communications Officials) is working on providing a staffing standard for communication centers. The project is named RETAINS (Responsive Efforts to Assure Integral Needs in Staffing).

No goals have been established for this subsection.

1c. Primary and Alternative Communication Systems

The Central Region uses a mix of private and public communications systems and technologies to support the delivery of emergency medical and trauma services. The largest of these is a countywide 800 MHz trunked radio system. This system is designed with a high degree of redundancy to ensure that it remains operational during disaster conditions. All hospitals in the region have acquired 800 MHz radios with the exception of Enumclaw Hospital. Enumclaw has indicated that they will have ordered 800 MHz radio. The radio should be operable sometime in April 2003. No other communication issues have been identified in the region. See section 1d "System Operations", for a description of communication systems.

1d. System Operations

Trunked 800 MHz Radio System

Trunked radio system technology provides a large number of dedicated "channels" referred to as Talkgroups for routine day-to-day communications. Talkgroups can be configured by dispatch centers to provide communications among agencies at the scene of an incident. Police, fire, and EMS personnel on the scene of an emergency may have direct communications with one another.

Talkgroups have been created for each hospital in the Region, for local ALS medical control functions, Region Wide EMS Mutual Aide, Airlift Northwest, for the on-duty trauma physician at Harborview Medical Center, and for inter-hospital communications ("Hospital Common") during disaster situations.

Medical Command hospitals also monitor their specific talkgroup for Medical Command and BLS Communications. Hospitals may individually inform transport when diversion is necessary. Transport units will then transport to the next closest appropriate hospital.

Harborview Medical Center is designated to serve as hospital control in the event of a large-scale medical emergency or disaster or MCI in the Region. Overlake Medical Center provides a backup for this function. During a large-scale event one of these facilities will track the patient handling capabilities of all hospitals in the Region and provide patient routing directions to incident command personnel at the scene(s). Hospital Control also provides patient diversion information to the PSAPs in the Region when a certain facility is unable to accept patients.

The County's emergency operations center (EOC) and the Health Department's EOC are also equipped with trunked system radios. Talkgroups have been established between these facilities and the hospitals in the Region for coordination of disaster resources.

VHF and UHF Systems

A UHF repeater on MEDCOM channel -1 is operated at a central location in the Region. This repeater provides mobile grade communications over much of the County.

The MEDCOM-1 is monitored at Harborview Medical Center (HMC) and is used by Airlift Northwest to communicate with HMC for medical control and coordination of patient arrival. The MEDCOM-1 repeater is permanently patched to a Talkgroup on the regional trunked system called MED-1, allowing crossover capabilities between the two radio systems.

Hospitals in the Region and many of the private ambulances are also equipped with VHF Hospital Emergency and Administrative Radio (HEAR) system radios. The HEAR channel provides a tone-coded VHF simplex environment that can be used for inter-hospital and ambulance-to-hospital communications. Because HEAR has localized base-to-mobile range of radio coverage, reliable communications can only be carried out when mobile units are within approximately a ten minute transport distance.

Non-radio communications

Given the large number of EMS providers and hospitals in the Region, it is quite common for communications to be accomplished through a variety of public and private systems other than radio. For example, pre-transport communications with a hospital from a patient's location may be made from the wireline phone at the scene or from a wireless phone used by the EMS agency. Several of the EMS agencies and private ambulance companies also employ digital pagers and wireless data networks to send dispatch and patient information in text form to and from responding units.

Website

The Council has utilized the resources of the University of Washington and Harborview Medical Center to develop the Puget Sound Hospital Capacity Web site. This system facilitates the reporting of changes in hospital capacity and status between all providers in real time. Information on the web page is accessible to other hospitals, EMS provider agencies, and public and private dispatch centers. The web site has the ability to quickly update hospital capacity and other information at the time of an MCI or disaster.

1e. Private and Other public Agencies

Private ambulance companies use a mix of private and commercial radio systems to meet their dispatch and response needs. Most communications between public EMS agencies and private ambulances are routed through their respective dispatch centers. Direct interoperability is possible through the patched MED-1 channel when needed. Public agencies have access to talkgroups on the 800MHz trunked radio system.

1F. Communications Providers and Dispatch Activities

Table is on the following page.

2.Goals

No goals were established for this section.

TABLE A

	Seattle Fire	Valley Com	Vashon Fire	Mercer Island Com	Airport Com	Enumclaw Police	Eastside Com
Citizen Access	E911	E911	E911	E911	E911	E911	E911
Consolidated	No	Yes	No	No	No	No	No
No. Employees	20	100	10	No information given	9	34	36.5
No. Not Trained	0	0	0	No information given	2	0	0
Training Offered/How Often	Quarterly EMS CBD,	EMS CE +CBD + annual	CBD + monthly	CBD	Ongoing training as needed	EMS CE +CDB + annual	EMS CE Call Receiver. Fire/EMS Primary Dispatch, fire/EMS Tactical Dispatch very 2 months.
On-going Training & Cert	yes	yes	yes	No information given	yes	yes	yes
Protocols	SFD	KC	KC	KC	KC	KC	KC
Medical Director Involvement	yes	yes	yes	yes	yes	yes	yes
Prioritizing	ALS/BLS life threatening vs. service call	ALS/BLS CAD priorities E 1,2,3,4	ALS/BLS life threatening vs. service call	ALS/BLS life threatening vs service call	ALS/BLS life threatening vs. service call	ALS/BLS CAD priorities E 1,2,3,4	ALS/BLS life threatening vs. service call
Bystander Assistance	yes	yes	yes	yes	yes	yes	yes
Pre-Arrival Instructions	yes	yes	yes	yes	yes	yes	yes
Q/A Activity	yes	yes	yes	yes	yes	yes	yes

IV. B. Medical Direction of Prehospital Providers

Medical direction is given to the appropriate providers in the appropriate situations. The MPD is involved in all training and protocol development and works extensively within the EMS system to ensure quality patient care. No issues, needs, or weaknesses have been identified in the medical direction system.

IV.C. Prehospital EMS & Trauma Services

1a. Current Personnel Resources

The Central Region EMS and trauma system has extensive workforce resources available to deliver pre-hospital trauma care. This workforce includes:

- 3467 Emergency Medical Technicians (EMTs) at 34 fire departments
- 210 paramedics at 6 Advanced Life Support (ALS) agencies
- 329 full-time and 51 part-time EMTs/RNs at 4 private ALS/BLS agencies

EMS Levy Support

The Central Region system is supported through a combination of EMS dedicated property tax levy funds, city/county allocations, and fire district funds. With a median priced single-family home (1,400 – 1,600 sq. ft) topping \$280,000, the current \$0.25/1000 assessed value levy rate generates considerable revenue to support publicly funded EMS agencies. In 2002, the EMS levy generated 98% of total EMS revenues. The EMS levy rate for 2002 is \$0.25/1000 of assessed value. The total estimated revenues for 2002 are \$53,829,000. As a result, paid personnel staff most of the region's agencies.

In 2002, the standard per full-time two-paramedic unit allocation was \$1,207,354. This cost included personnel, medical equipment and supplies, support costs for dispatch, supervision, medical direction, continuing medical education and other EMS related expenses. The standard allocation for part-time 12-hour paramedic units and full-time EMT-P units was \$603,677. Paramedic vehicle replacement is funded separately from the standard unit allocation. Vehicles are replaced every three years and then placed in backup status for an addition three years. The allocation for vehicle replacement in 2002 was \$117,484.

Levy support for the thirty-three BLS agencies in the Region outside Seattle is approximately \$8,500,000.00 per year. Despite generous revenues, agencies in rural areas still rely on volunteers and do experience some difficulty in recruitment and retention of volunteers.

Goal: Ensure the success of EMS agencies that service rural and large areas of unincorporated King County

Objective: Provide better financial assistance to agencies in less populated areas.

Strategy: The EMS Division is modifying the BLS funding formula, beginning with 2003, through a pilot formula agreed upon with the fire departments. This formula will be evaluated annually for two years to determine financial impacts. Adjustments to the formula will be made as needed.

Section c. "Prioritizing and Conducting Prehospital Training" addresses training issues that are applicable to volunteers and paid personnel.

1b. Prehospital Training Resources

Prehospital training is provided by a number of institutions and agencies in the Region. No issues, needs or weaknesses have been identified for training resources.

<i>Institution</i>	<i>Class type</i>				
	<i>FR</i>	<i>EMT</i>	<i>CBT* (BLS OTEP)</i>	<i>Paramedic</i>	<i>Paramedic CME</i>
<i>EMS Division</i>		X	X		X
<i>University of Washington/Harborview Medical Center</i>				X	X
<i>North Seattle Community College</i>	X	X			
<i>American Medical Response</i>		X	X**		

*Competency Based Training (CBT). ** AMR is affiliated with Bellevue Community College. Students taking the EMT classes at AMR receive college credit upon payment to BCC.

1c. Prioritizing And Conducting Prehospital Training

King County EMS offers First Responder and EMT-B classes twice yearly in locations throughout the region.

King County CBT (competency based training) and Seattle Fire CBT are agency based OTEP programs. Selection of CBT modules is based upon state recertification requirements, provider requests, and Medical Program Director input. Each training module includes cognitive testing and review of the questions and answers, overview of the topic, and psychomotor testing using case studies and scenarios. CBT modules rotate in three-year cycles.

All paramedics in the Central Region are trained and certified by the University of Washington consistent with the provisions of RCW 18.71. Based at Harborview Medical Center, the paramedic-training program consists of approximately 10 months of instruction that includes an intensive clinical and field internship.

Paramedics recertify every two years. Requirements for recertification include 50 hours of CME (continuing medical education) every year. CME programs must meet the training requirements of the University of Washington/Harborview Medical Center and include emerging patient care issues and topics selected by the medical director of the paramedic training program. All prehospital trauma training is at a maintenance level.

Goals: Continue to provide training to help prehospital personnel provide high-quality health care to the population.

Objective: Continue to make all training easily accessible to EMS personnel.

Cost: included in EMS Division budget

Strategy Develop new training delivery systems such as web-based training programs.

Objectives: Continue to provide training that considers time and cost restraints of EMS provider agencies.

Cost: none

Strategies

1. Limit requirement for initial training programs
2. Carefully consider merits of new training initiatives in order to avoid increasing demands on agency training.

Objectives: Provide training that meets the needs of the population.

Cost: not known at this time.

Strategy Evaluate impacts of new training such as blood glucose testing for diabetic patients and identifying and assisting victims of domestic violence and elder abuse.

1d. Additional Public Safety Personnel

Search and Rescue

The Special Operations Unit of the King County Sheriff coordinates search and rescue activities. Member agencies of King County Search and Rescue Association (KCSARA) include:

- 4 x 4 Rescue Council
- Rescue One (KCFD #28)
- Seattle Mountain Rescue Council
- Ski Patrol Rescue Team
- Explorer Search and Rescue
- Northwest Bloodhounds
- Pacific Northwest Trackers
- German Shepherd Search Dogs
- Civil Air Patrol
- King County Amateur Radio

Other government resources

<i>Agency</i>	<i>Air Units</i>	<i>Marine Units</i>
<i>Seattle Police</i>		X
<i>Seattle Fire Department</i>		X
<i>Northshore Fire Department</i>		X
<i>King County Sheriff (search only)</i>	X	X
<i>Navy (Whidbey Island Naval Air Station)</i>	X	
<i>National Guard</i>	X	
<i>Army MAST(Military Assistance to Safety and Traffic)</i>	X	
<i>Coast Guard</i>	X	X

Currently there are no identified weaknesses, issues or needs within the region relating to additional public safety personnel. However, should the army reserves be called into action, Army MAST helicopters might not be available for search and rescue. In this case, the Navy will be contacted to provide helicopter search and rescue.

Goal: Ensure that search and rescue helicopters are available when needed.

Objective: Locate alternate search and rescue helicopter services. **Cost:** none

Strategy: Prehospital agencies in the Region will investigate alternatives to using Army Mast services.

Community Responders

King County EMS Division in conjunction with Seattle and King County fire departments has developed the Seattle-King County Community Responder CPR-AED program as an adjunct to the very successful community CPR program of Seattle and King County. Training and AED units are available to organizations and work sites. There are no identified weaknesses or issues regarding community responders.

C2 Goals:

Goals, objectives and strategies are addressed under applicable sub-sections.

IV.D. Verified Aid and Ambulance Services

Central Region Emergency Medical Services uses a tiered system. Call takers at local dispatch centers briefly interview the caller to determine the nature of the call. If the call requires medical intervention, a BLS unit is dispatched to the scene. If a patient's symptoms meet specific criteria, ALS will also be dispatched. EMTs at the scene may also request ALS response.

In 1997 the EMS Division began a four-year pilot program named TRP (Telephone Referral Project). TRP allows dispatchers to transfer a specified set of non-urgent callers to a consulting nurse line. Eastside and Valley Communication Centers participated in TRP. Analysis of data and interview with patients who were referred to the nurse line showed no adverse outcomes and a high degree of patient satisfaction. TRP has been incorporated into EMS Division Emergency Medical Dispatch Program as part of standard dispatch procedures at Eastside and Valley Com Centers. Though not widely applied at present, TRP represents an efficient use of resources and provides a third tier in the Region's EMS response system. As the safety net for lower income and indigent residents continues to give way, programs like TRP will provide needed access to medical advice and may save significant resources in the future.

Other programs developed by Public Health, hospitals, fire departments, and private organizations are geared toward stabilizing or decreasing inappropriate use of the EMS system through injury prevention and community education.

D 1. Current Status

- 1a.** EMS service areas are currently defined by fire district. Though response times in urban, suburban, rural, and wilderness areas are within limits established by WAC, some fire districts with large unincorporated areas may be underserved. Areas of consideration include, Black Diamond-Enumclaw, Vashon Island, and Skykomish. These are areas with low patient volume. It would be difficult for paramedics to keep up their skills with such a limited patient load. BLS agencies and response area designations are listed in Appendix IV, Page 1.
- 1b.** The King County EMS Master (Strategic) Plan, adopted in 1991, identified the need, distribution, and level of care necessary to assure availability of EMS services to the public. The plan identified strategies for location and staffing of ALS units in Seattle and King County. Response time and demand data were used to determine placement of ALS vehicles (geography, topography and traffic patterns are factors related to response time; population density, mean age, and mean financial status are related to demand data). The Plan was last updated in 2001 for the 2002-2007 levy period. The 2002-2007 Strategic Plan calls for paramedic service upgrades from 12 hour units to 24 hour units in 2003 for Issaquah and addition of 12 hour paramedic units in South King county in 2004 and 2006

BLS services make deployment decisions based on growth in demand for services, response times, and financial resources. By utilizing the established locations and staffing of local fire departments and private BLS agencies, the Central Region provides near optimal response times. Reference Map, "Fire Department Service Area Boundaries". There are no changes in services from previous recommendations.

D 2. Issues

Prior to placing the 2002-2007 EMS levy on the ballot, the EMS Advisory Committee recommended to the King County Council and the six cities with populations greater than 50,000, a levy rate of .29 per \$1000 of assessed property value. A levy rate of \$0.25 per \$1000 assessed value was recommended by a special EMS Task Force of elected officials and included in the EMS Strategic Plan Update for 2002-2007. Voters approved the levy at this level in November 2001.

Challenges not anticipated by the levy proposal have arisen. There has been an interest by providers and the medical directors in upgrading current EMT/P units to two paramedic units as funding allows. Funds and an operational plan have been identified by a partnership agreement between King County, Eastside Fire and Rescue, and Bellevue Fire Dept in order to upgrade service for the EMT-P unit stationed in North Bend to a standard two-paramedic unit. A partnership agreement similar to that developed for the North Bend EMT/P unit will be sought with departments in NE King County in order to upgrade the EMT/P unit in Woodinville. Additional paramedic service has been requested in the Skykomish area - it is very uncertain whether funding for this service will be available.

Increased demand

Population in some Central Region areas has almost doubled over the past ten years. In addition, the Influx of daily workers from adjoining counties greatly increases the number of persons the Central Region County. Overall, demand for EMS service has increased at an average annual rate of 4% for the past nine years.

D.3. Goals and Strategies

Goal: Maintain the current level of high-quality patient care

Objective: Determine need and begin planning for next six-year levy period.

Cost: unknown at this time.

Strategy:

1. Review response times and patient outcomes in areas requesting additional or upgraded services.
2. Discuss specific concerns of paramedics and EMTs in areas requesting additional or upgraded services.
3. Relocate existing ALS units if needed.
4. Continue use of private ambulance services for transportation needs and support during multiple casualty incidents.

Objective: Mitigate effect of increased E-9-1-1 requests (demand). **Cost:** No additional funds required

Strategy:

1. Continue using the strategic initiatives called for in the 1998-2003 Emergency Medical Services Strategic Plan.
 - Group Purchasing Program
 - Telephone Referral
 - Alternate Transport
 - Injury Prevention/Public Education (Falls and MVI)
2. Develop new strategic initiatives aimed at improving efficiency and cost effectiveness.

D 4 Table B

VERIFICATION

Region: Central

County: King

Date: January 29, 2003

Min/Max Numbers for Trauma-Verified Prehospital Services

Services	STATE APPROVED		CURRENT STATUS	REGION PROPOSED (Indicate changes with an *)	
	MIN	MAX		MIN	MAX
<u>Aid - BLS</u>	11	15	9	11	15
Aid - ILS	0	0	0	0	0
Aid - ALS	1	1	0	1	1
Amb-BLS	27	30	24	27	30
Amb - ILS	0	0	0	0	0
Amb - ALS	5	5	6**	5	5

**Includes Airlift Northwest

E. Patient Care Procedures

1. Current Status

Central Region PCP's were last updated June 2001. The Central Region Trauma Council will be reviewing the PCP's and making revisions in 2004.

2. Issues

Recent data reviews at quarterly Quality Assurance Committee meetings have brought to light the need to discuss and possibly revise some elements of the Central Region PCPs including

- ✓ Inter-facility transport guidelines for minor and non-trauma patients
- ✓ Trauma team activation
- ✓ Hospital bioterrorism preparedness and response
- ✓ HIPAA legislation

3. Goals & Strategies

Goal: update PCP's to address weaknesses and issues arising out of new legislation and recent events.

Objective: Decrease number of minor trauma patient inter-facility transfers from level III and IV facilities to Level I facility. **Cost:** none

Strategy: Review data at Q/A meetings and reach consensus on solution.

Objective: Provide clear guideline on when and how trauma centers will activate their trauma teams. **Cost:** none

Strategy: Review trauma activation data for trauma centers and develop consensus on guidelines that trauma centers agree to use.

Objective: Add Hospital Bioterrorism Preparedness and Response Plan to Appendix in PCPs. **Cost:** printing fees – not known

Strategy: Complete BT plan and add to appendix.

Objective: Provide clear guideline on how hospitals will transmit data to the Trauma Registry. **Cost:** none

Strategy: Review HIPAA regulations and develop guideline.

F. Multi-County or County inter-regional Prehospital Care

1. Issues:

Out-of-region pre-hospital emergency response is provided by mutual aid agreements between adjoining fire services agencies in King, Snohomish, and Pierce Counties. Patient flow is predominately towards the hospitals in King County. Hospital diversions always present a struggle, especially in multiple casualty incidents...how can we make all hospitals standardize and how can we best distribute this information to prehospital providers. The Puget Sound Hospital Capacity is a good starting point. Getting hospitals across county lines to use and update their web page when they go on divert or when an MCI occurs near county lines can be difficult. Hospitals in other counties are not under the jurisdiction of Hospital Control in King County though there is cooperation when requested.

Pierce and Snohomish Counties are purchasing 800 MHz radios that will allow for better communications between providers on either side of the "border". The Statewide Med Com 2 will also help with communications in areas where 800 MHz radios do not work.

2. Goals

Goal: Increase communications between hospitals and prehospital providers.

Objective: Increase usage of website. **Cost:** negligible

Strategy: Monitor website for diversions and updates and provide activity report to individual hospitals.

Goal: Increase communications and inter-operability among providers in King, Pierce, and Snohomish Counties.

Objective: Develop tri-county MCI guideline. **Cost:** not yet determined.

Strategy:

1. Meet with tri-county prehospital agencies, review existing MCI plans and develop new plan.
2. Encourage prehospital agencies to invest in 800 MHz radios.

Objective: Hold a tri-county MCI drill. **Cost:** not yet determined.

Strategy: Meet with tri-county agencies, plan and hold drill.

Section V

DESIGNATED TRAUMA CARE SERVICES

Section V.

Designated Trauma Services

Trauma Centers

V1. Issues

Central Region hospital resources provide health care to 1.737 million residents of King County. The Region's facilities also serve as referral destinations for patients originating outside the Region including Idaho, Alaska, and Montana. Approximately 30% of major trauma patients treated at Harborview Medical Center are from out-of-county.

There are eighteen full-care hospitals in King County. Ten are located in the City of Seattle; eight are located in adjacent cities. Eight of the hospitals are designated trauma centers. Trauma centers are located along the I-5 and I-405 corridors proximal to the large population centers of the region. The level I trauma center is located near the center of the Region's populated areas. Central Region designated trauma centers treated 5328 serious trauma patients in 2001, excluding isolated hip fractures. The total staffed bed capacity of Central Region is 3,831.

Several issues have been identified during routine meetings of the Central Region Hospital Committee. Those issues include:

- ❖ Staff shortages
- ❖ "On-call" no shows and specialist availability
- ❖ Lack of after-hours primary and urgent care clinics
- ❖ Hospital and emergency department overcrowding
 - Access to primary care and deferred treatment
 - Inadequate funding for healthcare

With the exception of nursing staff shortages and lack of after-hours and urgent care clinics, all issues revolve around increasing costs of providing services compounded with decreasing payment for services. Membership also identified an overall system weakness that extends beyond regional boundary lines – the need to share information.

Staff Shortages

There is an ongoing shortage of nurses, technicians, and pharmacists in Central Region hospitals. Reasons for staff shortages include a decrease in four-year colleges offering degree programs in nursing, shortage of emergency department nurse training programs, relatively low pay, heavy workload, lack of advancement potential, and status. In spite of the current shortage of qualified trauma service personnel, Trauma Registry reports show that observed mortality rates continue to be less than expected mortality rates.

Since workload and pay are financially related issues that are beyond the scope of regional councils and most hospital staff, Central Region hospitals have chosen to focus on training programs and promotion of medical careers in the Northwest as a means to address staffing shortages.

Goal: Increase number of qualified applicants in nursing, imaging and IV technicians, and pharmacists. This goal addresses both the issue of qualified staff and the issue of information sharing across individual hospital and county lines.

Objective: Make training more accessible within the Central Region and other regions by continuing to offer the Basic Nursing Course and other emergency medical trainings statewide via Telemedicine. **Cost:** \$780 dialup charge for each of the eight sessions. **Barrier:** Cost, not all areas in the Region's have access to telemedicine.

Strategy:

1. Apply for grant to support telemedicine training programs.
2. Examine expense, feasibility, and interest of expanding the training offered via telemedicine to include other EMS programs offered to EMS agencies and hospitals throughout the state. For example, Grand Rounds could be taped and broadcast from Harborview's training center. The training center is already set up for taping and broadcasting.

"On Call" No Shows and Specialist Availability

Trauma centers report that "on call" surgeons and orthopedists increasingly fail to respond to trauma center requests for consultation and surgery involving minor injuries. Reasons cited include:

- existing scheduled appointments– providers are booked and have no available time
- surgery very specialized and beyond scope of practice
- reduction in Medicare and Medicaid payments (11% decrease in reimbursement in past two years)
- loss of trauma funds
- loss of/or decreased enhanced reimbursement.
- Increase in cost of medical malpractice insurance (165% increase in the past two years).

It is important to note that these cases are minor trauma cases – not cases where the trauma system has been activated. A typical case where an “on call” provider fails to respond is a hand injury that requires complicated orthopedic surgery. Such a patient is evaluated, treated, and transported to Harborview Medical Center for surgery. While Harborview welcomes these patients as good study subjects for medical students, minor trauma patient transports conflict with other responsibilities of Harborview’s emergency department, including detox and mental health patients, as well as their typical emergency department patient load. Transport of minor trauma patients to HMC is increasing in frequency.

“On call” provider appointment schedules are not under the control of the hospital human resource managers and therefore are not discussed in this plan. Payments for service and public funding issues are discussed in the Hospital and Emergency Department Overcrowding section of this Plan.

Goal: Keep doctors insured.

Objective: Promote development and adoption of medical malpractice insurance tort reform that limits awards for “pain and suffering” to \$250,000. **Cost:** unknown

Strategy: Continue to lobby the Legislature to rewrite the tort laws.

Goal: Decrease Harborview’s ED patient load

Objective: Decrease the number of minor trauma patients transferred to Harborview from level 3 and level 4 trauma centers. **Cost:** None

Strategy: Change PCPs to better define when minor trauma patients may be transferred, time line June 2004.

Lack Of After-Hours And Urgent Care

Hospitals and trauma center personnel have observed that emergency departments appear to be more crowded between the hours of 7:00pm and 11:00pm and on weekends.

Many of the patients in the emergency department during these hours are seen for non-emergent injury and illness. A private physician or clinic could easily care for many of these patients for less money. Increasing access to non-emergent patient care after-hours and on weekends will have the following effect:

- Save the healthcare system money
- Decrease emergency department crowding
- Decrease incidence of diversion
- Decrease need for additional ED staff

Goal: Support an increase the number of after-hours primary care and urgent care clinics.

Objective: Raise awareness of the need for after-hours, weekend, and urgent care facilities. **Cost:** minimal

Strategy:

1. Research records and compile a time dependent database of patient load in trauma center emergency departments. Time frame: July 2003 – June 2004
2. Perform a cost analysis of emergency department charges vs. primary care/urgent care rates for same diagnostic code/procedure. Time frame: July 2004
3. Publish and distribute findings. Time frame: June 2005

Hospital, Emergency Department Overcrowding and Diversion

Hospitals in the region are experiencing “high census” resulting in intermittent closures and diversions as sick patients go to the emergency department for treatment. Data show sick patient usage of emergency department has increased four to seven percent over the past year. Emergency department overcrowding is compounded by limited ICU, surgery, and bed capacities and long waits for transport to other facilities. In addition, Group Health – Eastside has closed their maternity ward and may close their hospital and emergency room. Group Health – Eastside emergency department treated 35,000 patients in 2002, excluding pediatric patients.

Hospital and emergency department overcrowding and diversion is a result of several factors including population, lack of access to primary healthcare, long waits for patient transport to other facilities, and emergency department and ICU closures in neighboring counties. Access to primary healthcare has been partially linked to availability of after-hours healthcare as discussed in the previous section. Other reasons why emergency departments are used instead of primary care facilities include poverty and language and cultural barriers.

Lack of Primary Care Physician And Delayed Treatment

When patients don't have a primary care physician, they show up at the emergency department for medical treatment. Often they present with an illness that could have been prevented or mitigated with early intervention by a primary care provider. Sicker patients require more intensive care and may need hospitalization.

Patients who have been seen in the emergency department may require follow-up care. If the patient has no primary care physician, they must return to the Emergency Department for follow-up care. This visit costs more than a visit to a primary care physician or clinic, and since the patient might not be seen by the same physician, continuity of care may be lost.

Poverty

The number of people in King County living below the poverty threshold has increased. The 2000 Census reported that 142,500 (8.4%) King County residents were living below the poverty threshold. Another 192,000 persons reported incomes below 200% of the official poverty threshold. Due to the recession, the number of persons with very low income has undoubtedly increased.³

The affordability gap of purchasing a single-family home increased by 16% from 2000⁴ to 2001 putting increased pressure on the rental market. Though the availability of rental housing has increased in King County, the rental prices have fallen only slightly from \$784 in 2000 to \$740 in 2001. Based on the average rental price of \$740 per month for a two bedroom, one bath apartment, the affordability gap for a low-income renter is \$294 per month.⁵ Rent affordability assumes that no more than 30% of income is spent on rent. When people spend more than 30% on rent, money for food, clothing, and utilities becomes scarce. Money for healthcare and health insurance is non-existent.

Uninsured people tend to wait longer before seeking healthcare and often go to the emergency department for medical care. These patients may be sicker and require more extensive treatment. There is an obvious need for no and low cost basic health coverage among the 20% low-income residents of King County.

Language and Cultural Barriers

The 2000 census reported that in King County, 63,000 persons over age five (3.9% of the population) do not speak English well or at all.⁶ Non-English speaking individuals might delay treatment due to fear and mistrust of American healthcare and the healthcare system. Though many of the hospitals in the Region have interpretive services and multilingual staff, there may still be room for improvement in the system's ability to address medical traditions of other cultures.

Lack of Insurance

Treatment costs for uninsured patients are passed on to patients who have private insurance, pushing up insurance premium costs and decreasing affordability of insurance. As the number of uninsured individuals increases, the cost of insurance increases and the number of uninsured persons continues to climb. Provision of affordable insurance combined with fair reimbursement for treatment is key to keeping the population healthy and the cost of healthcare more manageable.

³ 2002 King County Annual Growth Report Highlights pg 5.

⁴ King County Annual Growth Report pg 48

⁵ King County Annual Growth Report Countywide pg 49

⁶ 2002 King County Annual Growth Report Highlights pg 5.

Delayed Transport

One of the reasons cited for emergency department and hospital overload is the time it takes to transport patients from the ED to appropriate facilities. There appears to be a shortage of ambulance and private basic life support units for transport. Enumclaw Community Hospital cited instances when Advanced Life Support (ALS) Helicopters are unable to land due to weather conditions in Enumclaw. In some cases patients have waited hours for comparable ground transport. Rapid ALS transport can make a difference in patient outcome.

Inadequate Public Funding For Healthcare

Decreased reimbursements for Medicaid and Medicare patients is cost shifting to medical facilities and physicians the full burden of caring for under-insured and non-insured patients. Absence of trauma reimbursement, the recent change in trauma reimbursement criteria from ISS>9 to ISS>16, and decreased enhanced reimbursement further shifts the burden of care to hospitals and trauma centers. This is a burden that healthcare providers cannot continue to bare.

In some states, hospitals have dropped out of the trauma center business citing the lack of adequate reimbursement as the main cause. Hospitals in other regions have indicated that they may follow suit. In Washington State many physicians, pharmacists, and other healthcare providers are no longer accepting Medicare and Medicaid patients. Proliance Surgeons has formally resigned from the Medicaid Program. Seattle Orthopedic and Fracture Clinic will merge with Proliance at the first of the year. After these two groups merge, approximately twenty-eight percent of the orthopedic surgeons in Snohomish, King, and Pierce County will no longer provide service to Medicaid patients⁷. Other surveys indicate that up to 50% of providers are no longer taking Medicaid patients and are not accepting any new Medicare patients. Medicare and Medicaid patients need access to healthcare. When they are turned away from the door of their local physician or specialist, they turn to local emergency departments for medical treatment.

Decreased growth in tax revenue over the past few years has lead to budget deficits within some major cities as well as King County and the State of Washington. 2003 budgets propose a laundry list of public health cuts amounting to \$13.9 million for Public Health – Seattle & King County⁸. \$6.1 million directly effects availability of healthcare to King County⁹ residents and may affect outpatient clinic services for non-insured patients. In addition the County has closed the Cedar Hills Addiction Treatment Facility and has decreased or ceased funding for a number of mental health programs. Patients who are addicted or mentally ill are especially susceptible to injury and illness when access to prevention and treatment programs are not available. These patients, along with others who rely on public health clinics and publicly funded health and wellness programs, will undoubtedly end up in the local emergency department where treatment is more expensive. Emergency Department visits cost three to four times more than a visit to a primary care physician or clinic.

⁷ The Seattle Times; Local News 12/2/02 "Doctors resist new Medicaid Contract:

⁸ King County 2003 Budget Overview

⁹ Health & Human Services Program Plan – Program Highlights

Use of primary care physicians for prevention, early intervention, treatment of non-emergent conditions, and follow-up care saves the healthcare system money. It is important that private insurance providers and public health agencies develop and promote a healthcare system that fairly reimburses healthcare providers and allows adequate access to medical care for all people.

Goal: Keep the players playing

Objective: Provide hard data to pressure the Legislature and Congress to increase public funding for Medicare, Medicaid and non-insured persons – including illegal aliens. **Cost:** unknown

Strategy:

1. Compile payer mix data for cost analysis showing problems caused by lack of public funding, timeline December 2003.
2. Prepare report for public disclosure, timeline June 2004

Objective: Reinstate Trauma Fund and Enhanced (indigent) Reimbursement at previous levels. **Cost:** unknown

Strategy:

1. Compile report showing effect of loss of Trauma Fund, Enhanced Reimbursement and change in ISS criteria, timeline December 2003
2. Distribute report to select individuals at local, State, and Federal agencies, timeline June 2004.

Goal: Decrease interfacility transport times.

Objective: Determine cause of long transport response times

Strategy:

1. Research transport data to determine frequency of delays, spectrum of response times, identify if provider specific, *timeline* June 04.
2. Request information from transport providers as to cause of long response times – as part of a team effort to decrease transport response times, *timeline* December, 04.
3. Based on transport provider response, determine next step, *timeline* June, 05.

Rehabilitation Facilities

Like the trauma centers, Central Region rehabilitation facilities serve the population of King County as well as other regions and states. Because rehabilitation facilities are limited and patient volume is high, the Council has historically recommended designation of all facilities that meet state requirements and wish to apply.

Over the past two years, the number of designated inpatient adult rehabilitation facilities in the Region has decreased. Swedish – Providence Campus has elected out of the trauma-designation program, leaving Harborview Medical Center/University of Washington Medical Center and Northwest Hospital Rehabilitation Unit to provide inpatient adult rehabilitation to the Region. Children's Hospital and Regional Medical Center is the sole provider of inpatient pediatric rehabilitation. Valley Medical Center is the Region's designated outpatient rehabilitation facility. Barriers to designation of additional rehabilitation services include patient caseworker approval of treatment plans, constraints on the length of treatment, and concerns about reimbursement of cost. The Central Region believes these issues are universal through out the state and recommends that the Rehabilitation Technical Advisory Committee address these issues and seek solution through education, training, and if needed, legislative action.

Barriers to Patient Care

Payment for Services

Physicians & Therapists

As with the designated trauma centers, physician and therapist availability varies with a patient's ability to pay. Medicaid and Medicare do not reimburse physicians and therapists at a high enough rate to offset the expense of the patient's care. Physicians and therapists with expertise in traumatic injury rehabilitation are in short supply, their appointment schedules are full, and many are refusing to accept patients without private insurance coverage.

Skilled Nursing Facilities

Payments to skilled nursing facilities (SNF) for Medicare and Medicaid patients have dropped. Medicare now pays \$309/per day – not enough to cover medication expenses for many patients. Private insurance companies often base their coverage rates on Medicare's rates. As a result, SNF's are closing. Northwest Hospital is closing their SNF, Group Health is selling the Kelsey Creek facility, and Branch Vista Health Care Center in Seattle's Central District began shut down in November 2002.

Rehabilitation Units

Basic Health Plan does not provide rehabilitation for persons over the age of 18 years. For Adults, Basic Health does cover the cost of a maximum of six physical therapy sessions per calendar year for post-operative treatment of reconstructive joint surgery.

Medicare/Medicaid reimbursements cover the cost of care for average intensity/needs patients. However, facilities that care for high intensity patients such as spinal cord, head trauma and burns are not adequately reimbursed.

Medicare and Medicaid do not provide for long-term outpatient rehabilitation therapy.

WAMI

Harborview./UWMC receives patients from the WAMI region (Washington, Alaska, Montana, Idaho). Patients from Alaska may not be eligible for the same services as patients from the other states. Alaska patients often move to Washington in order to receive rehabilitation benefits often at the expense of their social and vocational networks. On the provider's side, staff must a different set of criteria when treating Alaska patients and billing for their treatment.

Restrictions on Services and Equipment

Durable medical equipment (DME) such as walkers, wheelchairs, or scooters are key to improving the quality of life for some patients. Lack of mobility can affect a person's level of independence, their work, and their ability to participate in social activities, and may lead to depression and/or dependence on more expensive types of care such as nursing home or assisted living care.

The Basic Health Plan

The Basic Health Plan does not provide for purchase of durable medical equipment (DME) such as walkers, wheelchairs, or scooters.

Medicaid and Medicare

Medicare and Medicaid cover the cost of some durable medical equipment under certain circumstances per WAC 388-543-1100. There are many requirements that must be satisfied before a particular piece of durable medical equipment will be provided, including:

- Within the scope of an eligible client's medical care program (see chapter [388-529 WAC](#));
- Within accepted medical or physical medicine community standards of practice;
- Prior authorized as described in WAC [388-543-1600](#), [388-543-1800](#), and [388-543-1900](#);
- Prescribed by a qualified provider, acting within the scope of the provider's practice. The prescription must state the specific item or service requested, diagnosis, prognosis, estimated length of need (weeks or months, not to exceed six months before being reevaluated), and quantity;

- Billed to the department as the payer of last resort only. MAA does not pay first and then collect from Medicare;
- Medically necessary as defined in WAC [388-500-0005](#). The provider or client must submit sufficient objective evidence to establish medical necessity. Information used to establish medical necessity includes, but is not limited to, the following:
 - A physiological description of the client's disease, injury, impairment, or other ailment, and any changes in the client's condition written by the prescribing physician, licensed prosthetist and/or orthotist, physical therapist, occupational therapist, or speech therapist; or
 - Video and/or photograph(s) of the client demonstrating the impairments as well and client's ability to use the requested equipment, when applicable.

When Medicare/Medicaid fails provide DMEs or when a piece of equipment breaks, needs new batteries, or needs repair prior to the MAA replacement schedule, staff at rehabilitation centers spend considerable time working with philanthropic organizations such as Lyons Club to provide DME equipment and repairs for patients who are in need.

Vocational Training

There may be a significant amount of rehabilitation before patients recover to point that they can return to work. Some patients require training in a new vocation. Currently there is no funding structure outside of the Department of Vocational Rehabilitation (DVR) that provides access to vocational training for rehabilitation patients. DVR does not employ coordinators or other staff who are trained and/or experienced in vocational rehabilitation or rehabilitation therapy.

The combination of payment systems, regulations, and restrictions limit patient access to care, training, and equipment that may help them reclaim some or all of their lives. Regulations are becoming stricter and are being more stringently enforced. Rehabilitation program managers feel that there is no need for strict regulation of patient care and consider some requirements to be a non-essential and costly. In addition, rehabilitation program managers feel that patients would be better served if government agencies such as DSHS and DVR, and some private insurers hired caseworkers that are trained and experienced in rehabilitation therapy or similar field.

Payment for services, restrictions, and regulations regarding rehabilitation services are a function of government policy. These issues are beyond the ability of regional councils and rehabilitation/SNF practitioners to change, therefore, there are no goals set for this particular subsection of the Biennial Plan.

Patient Outcome Data

Many people who suffer injury or illness severe enough to require long-term rehabilitation never regain full independence and mobility. Depression and suicide are common. Long-term patient outcome studies are needed to affect a greater understanding of what resources are key to providing a higher quality of life for persons suffering from disabling injury or illness. Outcome data is also necessary for providers to evaluate their own services and to bring scientific grounds for policy change requests to public health agencies such as HCFA, DSHS and MAA.

Barriers to data collection and analysis

ICD codes

ICD codes often change when patients are transferred and may not accurately reflect the original etiology. For example, a patient is admitted to the hospital with a broken pelvis and is transferred to a skilled nursing facility (SNF) for recovery. The patient might develop complications such as pneumonia and be transferred to an acute care facility for treatment where the ICD code is changed to reflect pneumonia. When the patient is transferred back to the SNF, the patient might be re-entered into the patient tracking systems as a respiratory patient instead of a trauma patient. The outcome data for this trauma patient will be lost.

Patient ID

The ongoing affects of injuries are difficult to track. Patients may seek treatment for symptoms related to previous injury or illness, but there is no way to match their symptom to the original cause. For example, someone who suffered a spinal cord injury might show up at the doctor's office two years later with numbness in his finger – possibly a long-term affect of spinal cord trauma. Without a unique ID that can be entered into the system at every visit, the ongoing effect of the spinal cord injury will not be known. A patient ID is needed to track patients through the system from initial injury/illness to three to six years post rehabilitation. Similar studies are conducted with cardiac arrest patients, why not with traumatic injury/illness survivors?

Diagnostic Tools

There is no good overall diagnostic tool. FIM (functional independence measurements) is the only accepted method to measure patient outcomes. FIM is widely used but is not sensitive enough to measure qualitative issues. There is a need to develop a new tool that effectively measures quality of life for rehabilitation patients.

Goal: Determine long-term patient outcomes for victims of severe traumatic injury.

Objective: Conduct patient follow-up study for 3-6 years post rehabilitation.

Strategy:

1. Locate researchers and grant manager to conduct study.
2. Estimate cost of study
3. Obtain human subjects approval
4. Obtain grant for study
5. Assign each patient an ID card to be carried and presented at every clinic, physician office, hospital, or therapy visit.

Special Populations

Traumatic Brain Injury (TBI)

TBI can cause long lasting symptoms that may be intermittent and brief. A patient with TBI may have no visible signs of injury compared to other forms of traumatic injury such as loss of a limb and may not receive the same degree of understanding and assistance offered to patients with visible trauma. Family members, friends, employers, and co-workers may not understand why a TBI victim cannot react normally. This is a long-term social issue that greatly affects the quality of life of TBI patients.

The current Medicare, Medicaid and Basic Health Plan systems do not provide for extended care, long-term rehabilitation, counseling, family education, or vocational training required by many TBI victims and their families. Without adequate funding for rehabilitative care, TBI patients may have difficulty reclaiming their lives. They may become depressed and suicidal and require more extensive and costly care. Central Region rehabilitation coordinators see a need for TBI group homes to provide transitional rehabilitation intensive care.

Children

Few skilled nursing facilities exist for children requiring long-term care and rehabilitation. Most live at home. Outcomes are variable because of limited resources, skills, and knowledge of family members. The quality of education offered at local schools is variable and there is no vocational training after high school. Children who have suffered traumatic injury or illness often have difficulty integrating into the community. They may feel that they have no future. A two-year follow-up study of teenagers with TBI showed high rates of depression and suicide.

Rehabilitation coordinators have identified a need for a resource book that lists books, websites and other places to get information on rehabilitation help, independent living, durable medical equipment, counseling, etc.

Goal: Provide patients and families with guide to rehabilitation resources.

Objective: Develop TBI information resource book. **Cost:** Not yet determined, dependant upon amount of materials that need to be printed.

Strategy:

1. Determine what is needed in this resource book
2. Research existing websites and publications for info on TBI and other disabilities.
3. Format, review and publish book
4. Distribute to rehabilitation facilities to hand out to patients and family members.

V 2 Goals

Goals are discussed in each applicable sub section.

V 3. Designated General, Pediatric and Rehabilitation Trauma Facilities

CENTRAL REGION

FY 04/05 Regional Plan

Min/Max Numbers for **Acute** Trauma Services

LEVEL	STATE APPROVED		CURRENT STATUS	REGION PROPOSED (Indicate changes with an *)	
	MIN	MAX		MIN	MAX
II	0	0	0	0	0
III	3	3	3	3	3
IV	4	4	4	4	4
V	0	0	0	0	0
IIP	0	0	0	0	0
IIIP	0	0	0	0	0

Min/Max Numbers for **Rehabilitation** Trauma Services

LEVEL	STATE APPROVED		CURRENT STATUS	REGION PROPOSED (Indicate changes with an *)	
	MIN	MAX		MIN	MAX
II	4	6	1	4	6
III+			1	1	1

+ There are no restrictions on the number of Level III Rehab Services

Section VI

DATA COLLECTION AND SUBMISSION

Section VI

DATA COLLECTION AND SUBMISSION

A. Data

1. Submission of Trauma Data

Central Region EMS providers do not submit data to hospitals for input. Central Region EMS providers submit data in the following manner.

Prehospital providers

- Transporting agencies leave (MIRF) Medical Incident Report Forms or equivalent at the hospital as required by WAC 246-976-330. MIRFs are submitted for all patients, not just trauma patients.
- All public King County EMS agencies outside of Seattle that do not submit data electronically, send completed Medical Incident Report Forms (MIRFs) to King County EMS.
- King County EMS agencies that collect data electronically, send their electronic data to King County EMS Division and the Central Region Trauma Registry.
- Seattle Fire Department submits data to King County EMS Division and Central Region Trauma Registry.
- Private agencies submit data (including times) to the State Trauma Registry.
- Non-transporting agencies give a copy of the initial MIRF or equivalent to the transporting agency so they can include it with the information given to the hospital.

King County fire departments including Bellevue, Shoreline, Kent Fire & Life Safety, Redmond, Fire District 40, Auburn, Federal Way, Kirkland, Port of Seattle, and SeaTac currently collect data electronically. Fire District 44, North Highline, Renton, Vashon and Woodinville will begin electronic data collection in the near future.

Electronic data collection provides consolidation of data and improves the accuracy and completeness of data.

Trauma Centers

Trauma centers enter the available prehospital patient care information in their records and data submit to DOH. Data is simultaneously copied to the Central Region Trauma Registry.

Trauma Registry

HIPRC (Harborview Injury Prevention & Research Center) links prehospital dispatch times to hospital data and forwards the linked data to DOH.

Issues

One current drawback to electronic data collection is that MIRF narratives are not readily available. King County EMS Division uses MIRF narratives for EMS prehospital system evaluation and special studies such as cardiac arrest survival. Staff at EMS Division must request MIRF narratives from individual agencies for specific cases. EMS agencies complain that locating and pulling of MIRF's is time consuming and costly.

Goals: Improve the method of data electronic data collection including MIR narratives.

Objective: Determine and implement best method of collecting MIR data in the field

Strategy: King County EMS is working on a pilot project called AID (alternate input device). AID is being developed to determine the feasibility of using tablet PCs for MIR input in the field. Tablets have the capability of collecting MIR including narrative. The pilot study is currently testing hardware devices and electronic forms only. This part of the study is not testing data transfer, connectivity, or printing requirements. Results from phase one of the pilot will be reviewed in April 2003.

Future developments of AID technology will include wireless transmission of patient data to the receiving hospital. Transmission of MIR including narrative will also be sent to the provider's agency for internal review as well as King County EMS for system quality improvement. All data sent will be encrypted and HIPAA and WAC compliant. The timeline for the next phase has not been determined

Section VII

EMS & TRAUMA SYSTEM EVALUATION

Section VII.

EMS AND TRAUMA SYSTEM EVALUATION

A. Effectiveness and Quality Assurance

1. Quality Assurance Programs

Prehospital agencies, hospitals, trauma centers, rehabilitation facilities, and dispatch centers conduct internal quality assurance activities that may include customer service surveys, run reviews, sentinel case reviews, tape reviews, and employee interviews. The EMS Division of Public Health – Seattle and King County and the Central Region Quality Assurance Committee conduct overall system evaluation.

The Central Region EMS & Trauma Care Council subcontracts with Harborview Injury Prevention and Research Center to collect, compile, and analyze trauma patient data for the region's quality assurance program. In fiscal year 2003, the Central Region Trauma Council budgeted \$126,509 for the region's trauma registry.

EMS Division

The EMS division of Public Health – Seattle & King County has developed the EMS Division Quality Management Plan that includes evaluation elements for all organizations within the Division. The Plan provides a consistent review process to ensure quality practices. The review process includes:

- Evaluation of EMT/CBT/CBD training programs.
- Evaluation of EMT/CBT/CBD instructors
- Review of random and sentinel cases
- Review of compliance data
- Analysis and review of system response data
- Random review of cases/tapes.
- EPI Auto-Injector case review (EPI Pen)
- Review of defibrillation cases
- ALS quality review
- Review of MIRFs for complete data
- Review of current prehospital medical practices
- Evaluate new techniques, equipment and medications

Quality Assurance Committee

The QA Committee reviews system performance and patient outcomes as they relate to major trauma. Membership on the Committee includes trauma centers, pre-hospital ALS providers, Public Health, Medical Program Directors, and the Medical Examiner. The Central Region Trauma Registry provides data used by the Q/A Committee.

Annual reviews include:

- ✓ Annual examination of unexpected deaths
- ✓ Trauma specific studies
- ✓ Individual case review
- ✓ Patient distribution
- ✓ Evaluation of prehospital response, scene, and transport times

The Quality Assurance Committee is recognized by the State of Washington as an activity consistent with RCW 43.70.510. Members and guests sign a pledge of confidentiality when they sign the attendance roster. Registry staff is responsible for distribution and collection, and disposal of confidential printed materials provided at each meeting.

Central Region Trauma Registry

Data for system review is provided by the Central Region Trauma Registry. The Registry receives and analyzes data provided by the designated trauma centers, Seattle and King County EMS agencies; and State Department of Health (DOH). Data points utilized by the Registry are those established by State DOH.

EMS and Trauma System Evaluation Issues

- Missing MIRFs and/or run numbers make it difficult to link hospital patient data with prehospital patient data making review of cases from initial contact through hospital treatment impossible.
- Electronic data collection does not provide access to narrative information found on MIRFs. Additional staff time is necessary to manually pull individual MIRFs for review.

As noted in Section VI, King County EMS is conducting a pilot study "AID." The use of electronic tablets to collect in field data including narrative should solve most of these issues.

Appendix IV-A

CENTRAL REGION PREHOSPITAL MAPS

Please contact the Region for hard copies of this Appendix

Section IV-B

CENTRAL REGION PATIENT CARE PROCEDURES

CENTRAL REGION PATIENT CARE PROCEDURES

June 30, 2001

Submitted by:

**Central Region
Emergency Medical Services and
Trauma Care Council**
999 Third Avenue
Suite 700
Seattle, Washington, WA 98104

CENTRAL REGION PATIENT CARE PROCEDURES

INTRODUCTION

WAC 246-976-960, Regional Emergency Medical Services and Trauma Care Systems, established the requirement for regions to adopt patient care procedures and specifically identified elements that must be included. The Central Region has developed and adopted Patient Care Procedures consistent with this requirement.

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- **Part I Prehospital Response to an Emergency Scene**
- **Part II Triage of Trauma Patients**
- **Part III Trauma Care Facilities**
- **Part IV Interfacility Transfers**
- **Part V Multiple Casualty Incidents (types and expected volume of trauma)**
- **Part VI Activation of Trauma System**
- **Part VII Medical and Minor Trauma Patients**
- **Appendix**
Hospital Diversion

PART I

Prehospital Response to an Emergency Scene

Part I: Prehospital Response to an Emergency Scene

Dispatch

Dispatch centers are accessed through the enhanced 911 system. Regional dispatch centers dispatch EMS units in accordance with King County Criteria Based Dispatch Guidelines. Seattle dispatchers use Seattle Fire Department Dispatch Guidelines. Dispatchers provide bystander emergency medical instructions while EMS units are in route to the scene.

Reference: Dispatch Center Contacts
Dispatch Boundaries Map

Basic Life Support

Basic Life Support response is provided by city and county fire department units staffed by First Responders and EMTs or private ambulance services staffed by EMTs. The nearest unit to an emergency scene will be dispatched following established dispatch guidelines.

Reference: Seattle Fire Department Station Location Map
King County Fire Department Service/Area Boundaries Map

Advanced Life Support

The paramedic unit nearest the emergency scene is simultaneously dispatched consistent with dispatch guidelines. Paramedic units provide advanced life support transport.

Reference: Paramedic Response Area Map

Wilderness

Wilderness response is directed by the King County Sheriff Search and Rescue Coordinator. EMS units may be dispatched to a staging area depending on the nature and location of the incident.

DISPATCH CENTER CONTACTS

Company	Title	First Name	Last Name	Phone	Fax	Address1	City
Eastside Communications Center	OPs	Pam	Heide	(425) 452-2920	(425) 452-4340	16100 N.E. Eighth	Bellevue
	Dispatch			(425) 452-2048			
South Communications Center	OPs	Grant	Gaspard	(253) 946-7258	(253) 529-7025	31617 First Ave. S.	Federal Way
	Dispatch			(253) 839-4621			
Valley Communications Center	OPS	Mark	Morgan	(253) 854-4320	(253) 850-3068	23807 98th Ave. S.	Kent
	Dispatch			(253) 854-2005			
Vashon Fire Department		Linda	Hamilton	(206) 463-2405	(206) 463-2954	P.O. Box 1150	Vashon
Mercer Island Communications Center		Al	Lacey	(206) 236-3518		9611 S.E. 36th	Mercer Island
		Julie	Stuveland	(206) 236-3514	(206) 236-3659		
Airport Communications Center		Dave	Richardson	(206) 433-5229	(206) 439-5167	SeaTac International Airport	Seattle
Enumclaw Police Department		Jason	Blake	(360) 825-3505	(360) 825-0184	1705 Wells	Enumclaw
		L.D.	Williams	(360) 825-3505	(360) 825-0184		
Seattle Fire Department	Battalion Chief	John	Pritchard	(206) 1493	(206) 684-7276	2318 Fourth Ave	Seattle

DISPATCH CENTER CONTACTS

PART II

Triage of Trauma Patients

Part II: Triage of Trauma Patients

These procedures are intended to provide guidance to prehospital care providers and their medical control physicians in determining which trauma center will receive the patient.

1. Prehospital providers will contact online medical control of the closest trauma center or Harborview Medical Center (Reference: Designated Trauma Centers in King County/Paramedic Response Area). Medical Control or Harborview Medical Center will determine patient destination consistent with Central Region Trauma Patient Care (Triage/Destination) Procedure.
2. The primary destination of **pediatric** patients meeting Step 1,2 or 3 inclusion criteria of Central Region Trauma Patient Care (Triage/Destination) Procedure is the Level I trauma center.
3. Unstable trauma patients should be managed consistent with the Central Region Trauma Patient Care (Triage/Destination) Procedure. Unstable trauma patients are those needing a patent airway or who may benefit from the initiation of fluid resuscitation. EMS providers who are unable to secure an airway or establish an intravenous line should consider these factors in the following order:
 - a. time to arrival of responding medic unit
 - b. time to rendezvous with responding medic unit
 - c. time to nearest trauma center
 - d. time to arrival of Airlift
 - e. time to nearest hospital with 24 hr emergency room
 - f. unusual events such as earthquakes and other natural disasters
4. Patient destination decisions will be monitored by the Regional Quality Assurance Committee

The goal in treating the unstable trauma patient is to provide potential life saving intervention and transportation to the highest-level trauma center able to provide definitive treatment. Ideally these interventions will be performed in a manner that does not unduly delay transport of a patient to the appropriate level of trauma center. This may require EMS providers to stop at a local hospital to stabilize and then transfer the patient to the trauma center.

Consistent with interfacility transfer agreements, trauma patients stabilized at non-designated hospitals should be transferred to a trauma center as soon as possible. Likewise, patients stabilized at Level III or IV trauma centers and meeting the criteria for triage to the Level I trauma center should be transferred as necessary.

The State's Level I trauma center is:
Harborview Medical Center
325 Ninth Avenue
Seattle, WA 98104

Transportation of trauma patients from wilderness areas is primarily accomplished by helicopter. The Level I trauma center should be the primary destination of these patients.

Reference: State of Washington Prehospital Trauma Triage (Destination) Procedure

**STATE OF WASHINGTON
PREHOSPITAL TRAUMA TRIAGE (DESTINATION) PROCEDURE**

Purpose

The purpose of the Triage Procedure is to ensure that major trauma patients are transported to the most appropriate hospital facility. This procedure has been developed by the Prehospital Technical Advisory Committee (TAC), endorsed by the Governor's EMS and Trauma Care Steering Committee, and in accordance with RCW 70.168 and WAC 246-976 adopted by the Department of Health (DOH).

The procedure is described in the schematic with narrative. Its purpose is to provide the prehospital provider with quick identification of a major trauma victim. If the patient is a major trauma patient, that patient or patients must be taken to the highest-level trauma facility within 30 minutes transport time, by either ground or air. To determine whether an injury is major trauma, the prehospital provider shall conduct the patient assessment process according to the trauma triage procedures.

Explanation of Process

- A. **Any certified EMS and Trauma person can identify a major trauma patient and activate the trauma system.** This may include requesting more advanced prehospital services or aero-medical evacuation.
- B. **The first step (1) is to assess the vital signs and level of consciousness.** The words "Altered mental status" mean anyone with an altered neurologic exam ranging from completely unconscious, to someone who responds to painful stimuli only, or a verbal response which is confused, or an abnormal motor response.

The "and/or" conditions in Step 1 mean that any one of the entities listed in Step 1 can activate the trauma system.

Also, the asterisk (*) means that if the airway is in jeopardy and the on-scene person cannot effectively manage the airway, the patient should be taken to the nearest medical facility or consider meeting up with an ALS unit. These factors are true regardless of the assessment of other vital signs and level of consciousness.

- C. **The second step (2) is to assess the anatomy of injury.** The specific injuries noted require activation of the trauma system. Even in the assessment of normal vital signs or normal levels of consciousness, the presence of any of the specific anatomical injuries does require activation of the trauma system.

Please note that steps 1 and 2 also require notifying Medical Control.

- D. **The third step (3) for the prehospital provider is to assess the biomechanics of the injury and address other risk factors.** The conditions identified are reasons for the provider to contact and consult with Medical Control regarding the need to activate the system. They do not automatically require system activation by the prehospital provider.

Other risk factors, coupled with a "gut feeling" of severe injury, means that Medical Control should be consulted and consideration given to transporting the patient to the nearest trauma facility.

Please note that certain burn patients (in addition to those listed in Step 2) should be considered for immediate transport or referral to a burn center/unit.

Patient Care Procedures

To the right of the attached schematic you will find the words "according to DOH-approved regional patient care procedures." These procedures are developed by the regional EMS and trauma council in conjunction with local councils. They are intended to further define how the system is to operate. They identify the level of medical care personnel who participate in the system, their roles in the system, and participation of hospital facilities in the system. They also address the issue of inter-hospital transfer, by transfer agreements for identification, and transfer of critical care patients.

In summary, the Prehospital Trauma Triage Procedure and the Regional Patient Care Procedures are intended to work in a "hand in glove" fashion to effectively address EMS and Trauma patient care needs. By functioning in this manner, these two instruments can effectively reduce morbidity and mortality.

If you have any questions on the use of either instrument, you should bring them to the attention of your local or regional EMS and Trauma council or contact 1-800-458-5281.

1994/Disc 1/triage.exp

PART III

Trauma Care Facilities

Part III: Trauma Care Facilities

Central Region Trauma Care Facilities are as follows:

Level I Trauma Center (Pediatric and Adult)
Harborview Medical Center

Level III Trauma Centers
Auburn General Hospital
Overlake Hospital Medical Center
Valley Medical Center

Level IV Trauma Centers
Evergreen Hospital Medical Center
Highline Community Hospital
Northwest Hospital
St. Francis Hospital

Reference: Designated Trauma Centers in King County/Paramedic Response Area

PART IV

Interfacility Transfers

Part IV: Interfacility Transfers

Private ALS and BLS agencies provide interfacility patient transfers at the direction of the hospital initiating the transfer. All interfacility patient transfers shall be consistent with the transfer procedures in chapter 70.170 RCW and WAC 246-976-890.

Level III and Level IV trauma centers will transfer patients to the State Level I trauma center when appropriate. The State's Level I trauma center is:

Harborview Medical Center
325 Ninth Avenue
Seattle, WA 98104

PART V

Multiple Casualty Incidents (types and expected volume of trauma)

Part V: Multiple Casualty Incidents (types and expected volume of trauma)

The Central Region has adequate resources to meet normal trauma patient volumes. Mechanism of injury and patient volumes are monitored by the Regional Trauma Registry and the Quality Assurance Committee.

Large Multiple Casualty Incidents may require the triage of patients to non-designated King County hospitals or to trauma centers in adjacent counties.

Reference: Central Region MCI Hospital Utilization Guidelines (Trauma)

PART VI

Activation of Trauma System

Part VI: Activation of Trauma System

Trauma system activation is accomplished at the time of contact with Medical Control. Online medical control at the receiving trauma center will activate the trauma team upon notification of the transporting agency or dispatcher.

PART VII

Medical and Minor Trauma Patients

Central Region Patient Care Procedures Transportation Guidelines for Medical and Minor Trauma Patients

Principles

- I. Prehospital care providers respect the right of the patient to choose a hospital destination and will make reasonable efforts to assure that choice is observed.

Factors including patient's choices may be:

1. Personal Preference
2. Personal physician's affiliation
3. HMO or preferred provider

Modifying factors which may influence the prehospital providers response:

1. Patient unable to communicate choice
2. Unstable patient who would benefit from transportation to nearest hospital or to hospital providing specialized services.
3. Transport to distant hospital would put Medic unit or Aid car out of service for extended period and alternative transport is not appropriate or available.

- II. Prehospital providers should transport unstable patients, i.e. compromised airway, post arrest, shock from non-traumatic causes, etc., to the nearest hospital able to accept the patient.

Reference: Hospital Resource Directory

- III. Emergency patients requiring specialized care such as hyperbaric treatment, neonatal ICU, or high-risk OB care should be transported to the nearest hospital able to provide such care.

- IV. When in doubt, prehospital care providers should contact online medical control.

APPENDIX

Hospital Diversion